

IN THE CLAIMS:

Please cancel claims 1-21.

Kindly add the following new claims 22-43:

22. A decorating sheet, having high three-dimensional workability, for use in the production of an article that is produced by the process of positioning the decorating sheet in an injection mold, closing the injection mold, injecting molten resin into the injection mold, and cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body,

wherein the decorating sheet includes at least a substrate sheet and a backing sheet, exhibits a colored condition, and has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40°C to 200°C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%.

23. The decorating sheet according to claim 22, wherein the process of producing the article further includes working the decorating sheet into a three-dimensional configuration and removing therefrom portions that are unnecessary, thereby providing a three-dimensionally worked decorating sheet,

positioning the decorating sheet in an injection mold comprises positioning the three-dimensionally worked decorating sheet in the injection mold,

cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body comprises cooling and solidifying the molten resin into a solid body such that all or part of the three-dimensionally worked decorating sheet is integrally bonded to the solid body, and

the decorating sheet has a characteristic that when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of 25 C, a product of Young's modulus and a cube of thickness of the decorating sheet, measured at a time of applying the load, is at least 1 kgfmm.

24. The decorating sheet according to claim 22, wherein the decorating sheet has a pencil hardness value of 3B - 2H on a side thereof that is opposite to a side that is to be bonded to the resin.

25. The decorating sheet according to claim 24, wherein the substrate sheet comprises a film selected from the group consisting of undrawn or lightly-drawn polyethylene terephthalate film, noncrystalline or low-crystalline polyester copolymer film, acrylic film, polycarbonate film, polypropylene film, polybutylene terephthalate film, polystyrene film, polyurethane film, acrylonitrile butadiene-styrene copolymer film, nylon film, polyvinyl chloride film, fluorocarbon film and cellulose acetate film.

26. The decorating sheet according to claim 22, wherein a thickness of the decorating sheet is not less than $250\text{ }\mu\text{m}$, a thickness of the decorating sheet excluding a thickness of the backing sheet is at most $200\text{ }\mu\text{m}$, and color of the backing sheet is dark and falls within the following ranges in the CIE1976(L*a*b*) color system

(i) $9 < L^* < 75$,

(ii) $-40 < a^* < 40$, and

(iii) $-60 < b^* < 30$.

27. The decorating sheet according to claim 26, wherein the backing sheet comprises a film selected from the group consisting of undrawn or lightly-drawn polyethylene terephthalate film, noncrystalline or low-crystalline polyester copolymer film, acrylic film, polycarbonate film, polypropylene film, polybutylene terephthalate film, polystyrene film, polyurethane film, acrylonitrile butadiene-styrene copolymer film, nylon film, polyvinyl chloride film, fluoroc film, polyethylene film, methacryl-styrene copolymer film and nitrocellulose film.

28. The decorating sheet according to claim 22, wherein the backing sheet is of a material that prevents vaporization and foaming.

29. The decorating sheet according to claim 22, wherein a difference between a shrinkage factor of the substrate sheet and a shrinkage factor of the backing sheet is from 0/1000 to 8/1000.

30. The decorating sheet according to claim 29, wherein the substrate sheet comprises an acrylic film and the backing sheet comprises a polypropylene film containing olefin rubber and a filler material.

31. The decorating sheet according to claim 30, wherein the olefin rubber comprises ethylene propylene rubber or ethylene-propylene-diene terpolymer, and the content of the olefin rubber is from 20 to 150 parts by weight based on 100 parts by weight of propylene resin.

32. The decorating sheet according to claim 30, wherein the filler material comprises talc, and the content of the filler material is from 5 to 20 parts by weight based on 100 parts by weight of propylene resin.

33. The decorating sheet according to claim 22, further comprising a first pattern layer between the substrate sheet and the backing sheet.

34. The decorating sheet according to claim 33, further comprising a second pattern layer between the first pattern layer and the backing sheet.

35. The decorating sheet according to claim 34, wherein material of the substrate sheet comprises an easily vaporizable and foamable material, and material of the second pattern layer comprises a material that prevents vaporization and foaming.

36. The decorating sheet according to claim 35, wherein the material of the second pattern layer is selected from the group consisting of polyethylene resin, polypropylene resin, styrene resin, fire-retardant ABS resin, and thermoplastic polybutadiene resin.

37. The decorating sheet according to claim 22, wherein the backing sheet comprises a lamination of plural sheets, and a difference between a shrinkage factor of the substrate sheet and a shrinkage factor of the one of the plural sheets that is farthest from the substrate sheet is from 0/1000 to 8/1000.

38. The decorating sheet according to claim 37, wherein the plural sheets comprise plural polypropylene films, the substrate sheet comprises an acrylic film, and at least the one of the plural polypropylene films that is farthest from the acrylic film contains olefin rubber and/or a filler material.

39. A method for manufacturing a decorating sheet having high three-dimensional workability, for use in the production of an article that is produced by the process of positioning the decorating sheet in an injection mold, closing the injection mold, injecting molten resin into the injection mold, and cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body,

wherein the decorating sheet has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40 C to 200 C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%, said method comprising:

forming a pattern layer on one of a backing sheet and a substrate sheet by laminating a carrier sheet, exhibiting a dimensional change rate of 0.6% under a temperature of 90°C, onto the one of the backing sheet and substrate sheet; and

covering the pattern layer with the other of the backing sheet and the substrate sheet such that the pattern layer is between the substrate sheet and the backing sheet.

40. The method according to claim 39, wherein laminating a carrier sheet, exhibiting a dimensional change rate of 0.6% under a temperature of 90°C, onto the one of the backing sheet and substrate sheet comprises laminating a biaxially oriented polyester film or a biaxially oriented polypropylene film onto the one of the backing sheet and substrate sheet.

41. A method for manufacturing a decorating sheet having high three-dimensional workability, for use in the production of an article that is produced by the process of positioning the decorating sheet in an injection mold, closing the injection mold, injecting molten resin into the injection mold, and cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body,

wherein the decorating sheet has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40 C to 200 C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40 C to 200 C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%, said method comprising:

transferring a pattern layer from a carrier sheet, exhibiting a dimensional change rate of 0.6% under a temperature of 90°C, to one of a substrate sheet and backing sheet by

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(i) laminating onto the one of the substrate sheet and backing sheet the carrier sheet such that the pattern layer is between the carrier sheet and the one of the substrate sheet and backing sheet, and

(ii) removing the carrier sheet from the pattern layer; and
covering the pattern layer with the other of the backing sheet and the substrate sheet such that the pattern layer is between the substrate sheet and the backing sheet.

42. The method according to claim 41, wherein transferring a pattern layer from a carrier sheet, exhibiting a dimensional change rate of 0.6% under a temperature of 90°C, to one of a substrate sheet and backing sheet comprises transferring a pattern layer from a biaxially oriented polyester film or a biaxially oriented polypropylene film to the one of the backing sheet and substrate sheet.

43. A decorated article formed by the process of:
positioning a decorating sheet in an injection mold, wherein the decorating sheet includes at least a substrate sheet and a backing sheet, exhibits a colored condition, and has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40°C to 200°C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%;

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closing the injection mold,
injecting molten resin into the injection mold, and
cooling and solidifying the molten resin into a solid body such that all or part of the decorating
sheet is integrally bonded to the solid body.